

In the Claims

- 1        1. [Original] A full color video projector system comprising:
  - 2            a. a light source, producing a full spectrum beam in a first direction;
  - 3            b. a splayed array of red, green, and blue dichroic reflector color
  - 4            filters, said splayed array being located downstream from said light source and
  - 5            being arranged so as to split said beam into red, green, and blue beam
  - 6            components and re-direct them in a second direction;
  - 7            c. a lenticular lens array, said array being transverse to said beam
  - 8            components traveling in said second direction, said lens array comprised of a
  - 9            plurality of elongated cylindrical lenses, said cylindrical lenses being arranged in
  - 10          parallel, co-planar relation, each of said lenses outputting a red, green, and blue
  - 11          color stripe illumination pattern at a lens array focal plane;
  - 12          d. a relay optic downstream from said lens array focal plane in said
  - 13          second direction, redirecting an incident composite of said red, green, and blue
  - 14          illumination pattern in a third direction;
  - 15          e. a reflective micro-mirror light valve downstream from said relay
  - 16          optic in said third direction, said light valve including three sub-pixels for every
  - 17          full-color screen pixel in a full color video image, said screen pixels being
  - 18          arranged in parallel stripes which correspond to the size and configuration of
  - 19          said color stripe illumination pattern outputted by said lenticular lens array, each
  - 20          of said sub-pixels having an actuated state in which at least a portion of said
  - 21          color stripe illumination pattern is reflected in a fourth direction, and an
  - 22          unactuated state in which at least a portion of said color stripe illumination
  - 23          pattern is reflected in a fifth direction;
  - 24          f. a projection lens, said projection lens having an input port directed
  - 25          toward said light valve, and an output port directed toward and focused upon a
  - 26          projection screen; and,
  - 27          g. light valve address circuitry interconnected to each of said sub-
  - 28          pixels, said address circuitry actuating appropriate sub-pixels to redirect
  - 29          corresponding portions of said color stripe illumination pattern in said fourth
  - 30          direction and upon said input port of said projection lens, in accordance with
  - 31          corresponding video image information.

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1           2. [Original] A projector system as in claim 1 further including an  
2 optical stop between said focal plane and said relay optic in said second  
3 direction, said optical stop having an aperture sized to pass selected portions of  
4 said red, green and blue beam components.

1           3. [Original] A projector system as in claim 2 in which said selected  
2 portions are approximately 1/3 of each said red, green, and blue beam  
3 components.

1           4. [Original] A projector system as in claim 1, further including a  
2 condenser lens, said lens being located downstream from said light source so as  
3 to focus said beam in said first direction.

1           5. [Original] A projector system as in claim 1, in which said light  
2 source is an arc lamp.

1           6. [Original] A projector system as in claim 1, in which said red and  
2 green color filters are splayed apart a predetermined angle, and said green and  
3 blue color filters are splayed apart said predetermined angle.

1           7. [Original] A projector system as in claim 1, in which said relay  
2 optic contains at least one reflective element, and is located approximately mid-  
3 way between said focal plane and said light valve.

1           8. [Original] A projector system as in claim 1 in which said optical  
2 relay images said color stripe illumination pattern on said light valve in a 1:1  
3 ratio.

1           9. [Original] A projector system as in claim 1 in which said light valve  
2 address circuitry includes a light valve controller connected to a column driver  
3 and a row driver, and in which said column driver is connected to one  
4 connection on each of said sub-pixels, and in which said row driver is connected  
5 to another connection on each of said sub-pixels.

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1           10. [Original] A full color video projector system comprising:  
2           a. light means for producing a full spectrum beam in a first direction;  
3           b. means downstream from said light means for splitting said beam  
4           into red, green, and blue beam components, and for re-directing them in a  
5           second direction;  
6           c. means for outputting a red, green, and blue color stripe illumination  
7           pattern at a focal plane, said outputting means being transversely positioned to  
8           said beam components traveling in said second direction;  
9           e. optical relay means downstream from said lens array focal plane in  
10          said second direction, for redirecting an incident composite of said red, green,  
11          and blue illumination pattern in a third direction;  
12          f. light valve means downstream from said relay means in said third  
13          direction, for alternatively reflecting at least a portion of said color stripe  
14          illumination pattern either in a fourth direction or in a fifth direction;  
15          h. a projection lens, said projection lens having an input port directed  
16          toward said light valve means, and an output port directed toward and focused  
17          upon a projection screen; and,  
18          g. means controlling said light valve means, for reflecting at least a  
19          portion of said color stripe illumination pattern in said fourth direction, upon said  
20          input port of said projection lens, in accordance with modulation information  
21          corresponding to a video image.

1           11. [Previously Presented] A projector system as in claim 10 in which  
2          said optical relay means contains at least one reflective element.

1           12. [Original] A projector system as in claim 10 in which said optical  
2          relay means images said color stripe illumination pattern on said light valve  
3          means in a 1:1 ratio.

1           13. [Original] A projector system as in claim 10 in which said light  
2          valve means includes a plurality of full-color screen pixels corresponding to a full  
3          color video image, said screen pixels being arranged in parallel stripes which  
4          correspond to the size and configuration of said color stripe illumination pattern.

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1           14. [Original] A projector system as in claim 13 in which each of said  
2 screen pixels includes three sub-pixels, each of said sub-pixels having an  
3 actuated state in which at least a portion of said color stripe illumination pattern  
4 is reflected in said fourth direction, and an unactuated state in which at least a  
5 portion of said color stripe illumination pattern is reflected in said fifth direction.

1           15. [Original] A projector system as in claim 10, in which said light  
2 means is an arc lamp.

1           16. [Original] A projector system as in claim 10 further including an  
2 optical stop between said focal plane and said relay optic means in said second  
3 direction, said optical stop having an aperture sized to pass selected portions of  
4 said red, green and blue beam components.

1           17. [Original] A projector system as in claim 16 in which said selected  
2 portions are approximately 1/3 of each said red, green, and blue beam  
3 components.

1           18. [Currently Amended] A reflective micro-mirror light valve,  
2 comprising: a plurality of full-color screen pixels, said screen pixels being  
3 arranged end to end to form parallel stripes, said parallel stripes corresponding to  
4 the size and configuration of a color stripe illumination pattern, each of said  
5 screen pixels including three sub-pixels, said sub-pixels including a reflective  
6 surface having an actuated state in which at least a portion of said color stripe  
7 illumination pattern is reflected in one direction, and an unactuated state in  
8 which at least a portion of said color stripe illumination pattern is reflected in  
9 another direction; and

10           wherein the parallel stripes collectively have a size substantially equal to  
11           the size of the color stripe illumination pattern lying within an illumination stripe  
12           focal plane upstream of the reflective micro-mirror light valve.

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1        19. [Original] A light valve as in claim 18 further including light valve  
2 address circuitry interconnected to each of said sub-pixels, said address circuitry  
3 actuating appropriate sub-pixels in accordance with data corresponding to a  
4 video image.

1        20. [Original] A light valve as in claim 19, in which said light valve  
2 address circuitry includes a light valve controller connected to a column driver  
3 and a row driver, and in which said column driver is connected to one  
4 connection on each of said sub-pixels, and in which said row driver is connected  
5 to another connection on each of said sub-pixel.

1        21. [Previously Presented] A light valve as in claim 18 wherein the one  
2 and the another directions are the only directions in which light of the color  
3 stripe illumination pattern is reflected by the reflective micro-mirror light valve.

1        22. [Previously Presented] A light valve as in claim 18 wherein  
2 individual ones of the sub-pixels are configured to reflect only one color of the  
3 color stripe illumination pattern during all operations of the reflective micro-  
4 mirror light valve.

1        23. [Previously Presented] A light valve as in claim 18 wherein  
2 individual ones of the full-color screen pixels are configured to simultaneously  
3 reflect light of the color stripe illumination pattern having at least two different  
4 colors.

1        24. [Previously Presented] A light valve as in claim 18 wherein  
2 individual ones of the full-color screen pixels are configured to simultaneously  
3 reflect light of the color stripe illumination pattern having three different colors.

1        25. [Previously Presented] A light valve as in claim 18 wherein the  
2 color stripe illumination pattern comprises a plurality of different colors which  
3 are repetitively alternated in a common direction at a moment in time.

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1        26. [Previously Presented] A light valve as in claim 25 wherein light of  
2 the alternating different colors of the color stripe illumination pattern is  
3 simultaneously present during operation of the reflective micro-mirror light valve.

1        27. [Previously Presented] A light valve as in claim 25 wherein an  
2 ordering of the different colors does not change during all operations of the  
3 reflective micro-mirror light valve.

1        28. Cancel.

1        29. [Currently Amended] A light valve as in claim 18 wherein an area  
2 defined by all of the full-color screen pixels of the reflective micro-mirror light  
3 valve is substantially equal to an area of the color stripe illumination pattern  
4 within [[an]] the illumination stripe focal plane upstream of the reflective micro-  
5 mirror light valve.

1        30. [Previously Presented] A light valve as in claim 18 wherein the  
2 parallel stripes of the full-color screen pixels correspond to the color stripe  
3 illumination pattern upstream from the reflective micro-mirror light valve.

1        31. [Previously Presented] A light valve as in claim 18 wherein a  
2 plurality of the sub-pixels individually reflect light of the same color during all  
3 operations of the reflective micro-mirror light valve wherein light is reflected to  
4 create an image.

1        32. [Previously Presented] A light valve as in claim 18 wherein the  
2 color stripe illumination pattern is generated prior to being reflected by the sub-  
3 pixels.

1        33. [Previously Presented] A light valve as in claim 18 wherein the  
2 colors reflected at a given moment in time are different for all immediately  
3 adjacent ones of the sub-pixels located in a common direction.

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1       34. [Previously Presented] A light valve as in claim 18 wherein the  
2 full-color screen pixels individually comprise a substantially square shape and  
3 respective ones of the sub-pixels of an individual full-color screen pixel  
4 comprise substantially rectangular shapes collectively corresponding to the  
5 substantially square shape of the respective individual full-color screen pixel.

1       35. [Currently Amended] A light valve as in claim [[28]] 18 wherein  
2 the color stripe illumination pattern is generated prior to being reflected by the  
3 sub-pixels.

1       36. [Previously Presented] A light valve as in claim 29 wherein the  
2 color stripe illumination pattern is generated prior to being reflected by the sub-  
3 pixels.

1       37. [Previously Presented] A light valve as in claim 18 wherein the  
2 full-color screen pixels comprise full-color screen pixels of a single chip.

1       38. [New] A reflective micro-mirror light valve, comprising: a plurality  
2 of full-color screen pixels, said screen pixels being arranged end to end to form  
3 parallel stripes, said parallel stripes corresponding to the size and configuration  
4 of a color stripe illumination pattern, each of said screen pixels including three  
5 sub-pixels, said sub-pixels including a reflective surface having an actuated state  
6 in which at least a portion of said color stripe illumination pattern is reflected in  
7 one direction, and an unactuated state in which at least a portion of said color  
8 stripe illumination pattern is reflected in another direction; and

9           wherein an area defined by all of the full-color screen pixels of the  
10 reflective micro-mirror light valve is substantially equal to an area of the color  
11 stripe illumination pattern within an illumination stripe focal plane upstream of  
12 the reflective micro-mirror light valve.

1       39. [New] A light valve as in claim 38 wherein the color stripe  
2 illumination pattern is generated prior to being reflected by the sub-pixels.

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1           40. [New] A reflective micro-mirror light valve, comprising: a plurality  
2 of full-color screen pixels, said screen pixels being arranged end to end to form  
3 parallel stripes, said parallel stripes corresponding to the size and configuration  
4 of a color stripe illumination pattern, each of said screen pixels including three  
5 sub-pixels, said sub-pixels including a reflective surface having an actuated state  
6 in which at least a portion of said color stripe illumination pattern is reflected in  
7 one direction, and an unactuated state in which at least a portion of said color  
8 stripe illumination pattern is reflected in another direction; and  
9           wherein the color stripe illumination pattern is generated prior to being  
10 reflected by the sub-pixels.

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